REMARKS

The present response is to the Office Action mailed in the above-referenced case on April 16, 2002. Claims 1-30 are pending for examination. The Examiner has rejected claims 1-8, 10 and 16-19 under 35 U.S.C. 103(a) as being unpatentable over Rekhter et al. ("Tag Switching Architecture"), hereinafter Rekhter, in view of Davie et al. (" Explicit Route Support in MPLS"), hereinafter Davie, and further in view of Semeria ("Multiprotocol Label Switching: Enhancing Routing in the New Public Network"), hereinafter Semeria. The Examiner has indicated that the subject matter of claims 11-15 and 26-28 as allowable.

Applicant has carefully studied the references cited and applied by the Examiner, particularly the portions relied upon by the Examiner in rejections, and the Examiner's rejections and statements in the instant Office Action. In response, applicant herein amends the claims to more particularly point out and distinctly claim the subject matter of applicant's invention regarded as patentable, and provides argument that the claims as amended distinguish clearly and unarguably over the prior art.

Regarding claims 1, the Examiner stated that Rekhter discloses substantially the limitations of applicant's claim, adding that Rekhter discloses the use of explicit routes in MPLS but differs from the teachings of claim 1 in that they do not teach the details of how explicit routes in MPLS work, but that the use of explicit routes in MPLS is well-known in the art, and one skilled in the art would have recognized the advantage of explicit routes as taught by Davie. The Examiner further states that, regarding claim 1, Rekhter in view of Davie differs from claim 1 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node, adding that this, however, is also well-known in the art, as taught by Semeria.

Regarding claims 2 and 7, the Examiner stated that Rekhter discloses that the network comprises a label-switching network (p. 1, col. 2, lines 19-22), and associating each packet data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (p. 2, lines 13-32).

Applicant respectfully traverses the Examiner's statement pertaining to claim 7. Although the Examiner does not reference from which column on page 2 of Rekhter the supporting disclosure is derived, applicant has nonetheless thoroughly studied the teachings of Rekhter, and respectfully points out to the Examiner that nowhere on page 2, or anywhere else in Rekhter, for that matter, is there any teaching whatsoever of associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node.

Rekhter teaches on page 2, col. 1, lines 13-32 a simplified data packet forwarding procedure enabled by the forwarding decision being based on the exact match algorithm using a fixed length, fairly short tag as an index. Applicant argues that Rekhter teaches in the above portion of the disclosure tag switching based on the notion of label swapping as the fundamental forwarding paradigm enabling higher forwarding performance, which clearly has nothing to do with the association of a particular data packet to be transferred from a particular source node to a particular destination node with one of a plurality of paths between the ingress node and the egress node. Rekhter, therefore, fails to anticipate the specific limitation recited applicant's claim 7.

Applicant herein amends the language of applicant's claim 1 to include said association between each data packet with one of a plurality of paths between the ingress node and the egress node wherein the subnetwork comprises a label-switching network. Claims 2 and 7 are accordingly herein canceled. Claims 3, 4 and 8 are herein amended to correct the dependencies from the canceled claims to newly amended claim 1.

Applicant's claim 1 as amended now recites:

1. (Amended) A method of forwarding packets of data over a network from a source node to a destination node, comprising:
providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of

subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route;

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node; and

associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node;

wherein the subnetwork comprises a label-switching network.

Claim 20 is applicant's apparatus claim in accordance with applicant's method claim 1. Applicant has herein similarly amended claim 20 to include the limitations of claim 21 and 24 in accordance with the above amendment to claim 1, to specifically recite that the ingress node is coupled to a plurality of source nodes, and each source code coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node, further characterized in that the subnetwork comprises a label-switching network.

Regarding applicant's claims 5, 6, 24 and 25, the Examiner has taken official notice that coupling an ingress node to a plurality of source nodes, and coupling an egress node to a plurality of destination nodes is old and well-known and art, as supported by the teachings of Davie. Applicant agrees. However, applicant argues that the association of each source node coupled to the ingress node and each destination node coupled to the egress node, with one of the plurality of paths through a subnetwork, is clearly not taught or suggested in the combined art, and the Examiner has not addressed the specific limitations of applicant's claims pertaining to said association.

Applicant has accordingly herein amended the language of claims 5 and 6, which specifically recites said association, to include in independent form, all of the limitations of applicant's claim 1 and 2, and has also amended the language of claims 24 and 25,

which also recite said association, to include in independent form, all of the limitations of applicant's claims 20 and 21. Said amendments are detailed in the markups section at the end of this response.

Regarding claims 12 and 26, the Examiner has indicated that the claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has herein accordingly amended claims 12 and 26 to include said limitations.

Applicant believes claims 1, 3, 4, 5, 6, 8, 12, 16, 17, 20, 22, 23, 25, and 26 as amended are now clearly and unarguably patentable over the prior art, either singly or combined, either on their own merits, or as depended from a patentable claim, as Rekhter now fails, as a primary reference, to disclose or suggest all of applicant's limitations as recited in the claims as amended. Claims 9, 10, 11, 13, 14, 15, 27 and 28 in their current form are also patentable on their own merits or as depended from patentable claim.

As all of the claims standing for examination as amended have been shown to be patentable over the art of record, applicant respectfully requests reconsideration, and that the present case be passed quickly to issue. If there are any time extensions due beyond any extension requested and paid with this amendment, such extensions are hereby requested. If there are any fees due beyond any fees paid with the present amendment, such fees are authorized to be deducted from deposit account 50-0534.

Respectfully Submitted,
John K. Renwick et al.

by _____
Donald R. Boys
Reg. No. 35,074

Donald R. Boys
Central Coast Patent Agency
P.O. Box 187
Aromas, CA 95004
(831) 726-1457

Version With Markings to Show Changes Made

In the claims:

1. (Amended) A method of forwarding packets of data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; [and]

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node[.]; and

associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node;

wherein the subnetwork comprises a label-switching network.

Cancel claim 2.

3. (Amended) The method of claim [2] 1 wherein the network comprises nodes which forward data using Internet protocol node addresses.

4. (Amended) The method of claim [2] 1 wherein each subnetwork node along the route allocates a plurality of labels for the plurality of paths along the route.

5. (Amended) [The method of claim 2 wherein:] A method of forwarding data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; and

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that the ingress node is coupled to a plurality of source nodes[;] and each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node, and further characterized in that the subnetwork comprises a label-switching network.

6. (Amended) [The method of claim 2 wherein:] A method of forwarding data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; and

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that the egress node is coupled to a plurality of destination nodes[;] and each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node, and further characterized in that the subnetwork comprises a label-switching network.

Cancel claim 7.

8. (Amended) The method of claim [7] 1 wherein the associating comprises performing a logical operation on information carried in each packet of data.

12. (Amended) [The method of claim 2 wherein] A method of forwarding data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; and

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that a response signal includes a label word which defines a plurality of data bits, a first subset of the defined data bits being associated with the route between the ingress node and the egress node and a second subset of the defined data bits being associated with the plurality of paths within the route, and further characterized in that the subnetwork comprises a label-switching network.

16. (Amended) [The method of claim 1 wherein:] A method of forwarding data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; and

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that the ingress node is coupled to a plurality of source nodes[;] and each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node.

17. (Amended) [The method of claim 1 wherein:] A method of forwarding data over a network from a source node to a destination node, comprising:

providing a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node;

forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route; and

receiving response signals from the nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that the egress node is coupled to a plurality of destination nodes[;] and each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node.

Cancel claim 18.

Cancel claim 19.

20. (Amended) An apparatus for forwarding data over a network from a source node to a destination node, comprising:

a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node; and

a communication subsystem within the subnetwork for (i) forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route, and (ii) forwarding response signals from the subnetwork nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node[.]

characterized in that the ingress node is coupled to a plurality of source nodes; and each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node, and further characterized in that the subnetwork comprises a label-switching network .

Cancel claim 21.

22. (Amended) The apparatus of claim [21] 20 wherein the network comprises nodes which forward data using Internet protocol node addresses.

23. (Amended) The apparatus of claim [21] 20 wherein each subnetwork node along the route allocates a plurality of labels for the plurality of paths along the route.

Cancel claim 24.

25. (Amended) [The apparatus of claim 21 wherein:] An apparatus for forwarding data over a network from a source node to a destination node, comprising:

a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node; and

a communication subsystem within the subnetwork for (i) forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route, and (ii) forwarding response signals from the subnetwork nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node;

characterized in that the egress node is coupled to a plurality of destination nodes[;] and further characterized in that each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node.

26. (Amended) [The apparatus of claim 21 wherein] An apparatus for forwarding data over a network from a source node to a destination node, comprising:

a subnetwork within the network having a plurality of subnetwork nodes connected by a plurality of subnetwork links, the subnetwork nodes including an ingress node and an egress node coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths between the ingress node and the egress node; and

a communication subsystem within the subnetwork for (i) forwarding a signal from the ingress node to the egress node along a route through a subset of subnetwork nodes between the ingress node and the egress node, said signal requesting a response from each node along the route, and (ii) forwarding response signals from the subnetwork nodes along the route, the response signals defining a plurality of paths within the route between the ingress node and the egress node

characterized in that a response signal includes a label word which defines a plurality of data bits, a first subset of the defined data bits being associated with the route between the ingress node and the egress node and a second subset of the defined data bits being associated with the plurality of paths within the route, and further characterized in that the subnetwork comprises a label-switching network.

Cancel claim 29.

Cancel claim 30.